

RECEIVED
CENTRAL FAX CENTER**Claim Amendments:**

MAR 05 2007

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Canceled)

2. (Currently amended) An IBAD apparatus for cooling and positioning a translating substrate during a continuous high-throughput coating deposition process comprising:

a deposition chamber comprising a vacuum chamber, a gas inlet, a source of deposition material for coating the substrate;

a transport system for translating a substrate to be coated through the deposition chamber;

a substrate block for positioning the substrate in a deposition zone where deposition material impinges upon the surface of the substrate, wherein the substrate block has an integrated structure containing both internal liquid coolant channels and internal gaseous coolant delivery channels, and the internal gaseous coolant delivery channels are connected by a manifold to the gas inlet and where the gaseous coolant delivery channels open to the deposition chamber through orifices at multiple points where the substrate block contacts the translating substrate; and

an ion beam source for imparting a biaxial texture in the deposition material.

Claims 3-6 (Canceled)

7. (Original) The apparatus of claim 2 where the diameter of the gas orifices are in the range of from about 0.025 to about 0.4 inches.

8. (Original) The apparatus of claim 2 where the diameter of the gas orifices are in the range of from about 0.05 to about 0.25 inches.

9. (Original) The apparatus of claim 2 where the diameter of the gas orifices are in the range of from about 0.075 to about 0.175 inches.

10. (Original) The apparatus of claim 2 where the multiple orifices are located no more than three inches apart.

11. (Original) The apparatus of claim 2 where there the multiple orifices are positioned such that there are from one to about twelve orifices every three inches.

Claims 12-25 (Canceled)

26. (Currently amended) An IBAD apparatus comprising:

- a deposition chamber comprising a vacuum chamber, a gas inlet, a source of deposition material for coating the substrate, and an energy source for delivering deposition material to a tape;
- a transport system for translating the tape through the deposition chamber;
- a substrate block for positioning the tape in a deposition zone where deposition material impinges upon the tape, the substrate block having a first surface and an integrated structure containing both internal liquid coolant channels and internal gaseous coolant delivery channels, wherein the first surface of the substrate block includes an array of orifices, wherein the internal gaseous coolant delivery channels extend open and unfilled to the array of orifices to deliver a flow of gas to a backside of the tape translating across the first surface of the substrate block;
- and
- an ion beam source for imparting a biaxial texture in the deposition material.

27. (Previously Presented) The IBAD apparatus of claim 26, wherein the internal gaseous coolant delivery channels terminate at a surface of the substrate block in the form of nozzles.

28. (Previously Presented) The IBAD apparatus of claim 27, wherein the nozzles are spaced apart along a length of the substrate block.

29. (Previously Presented) The IBAD apparatus of claim 25, wherein the source of deposition material contains deposition material selected from the group consisting of YSZ, MgO and CeO₂.

30. (Previously Presented) The IBAD apparatus of claim 29, wherein deposition material comprises MgO.

31. (Previously Presented) The IBAD apparatus of claim 25, wherein internal gaseous coolant delivery channels contain and deliver gaseous coolant selected from the group consisting of N₂, Ar, He, and O₂.

32. (New) The IBAD apparatus of claim 2, wherein the orifices are arranged in an array.